

33883
S/640/61/000/000/004/035
D258/D302

The structure of the ...

800°C showed that, at less than 4 at.-% Mo, there is a gap between the end of the $\alpha \rightarrow \beta$ transformation and the beginning of $\beta \rightarrow \gamma$; this gap disappeared at higher Mo contents. On the other hand, micrographs of samples (quenched from 675 - 750°C and heated before for long periods) show the existence of a γ -phase in samples containing only 1 at.-% Mo; this phase goes up to 80% of the total volume, at 5 at.-%. On the strength of this evidence, the $\beta/(\beta + \gamma)$ boundary is markedly displaced towards the Mo-poor side. The second series included samples containing 0.05 - 90 at.-% Mo. Micrographs recorded on cast samples in the range of 24-90 at.-% confirmed the peritectic nature of the crystallization. Dendritic liquation was observed in the range of 24 - 36 at.-% and led to the assumption of a peritectic point at 32- 36 at.-% Mo. The microstructure of homogenized (1000°C for 72 hrs) and quenched samples consisted of 2 phases, beginning with a content of 35.2 at.-%. A 90 at.-% alloy contained only 8 - 8% (per volume) of the γ -solid solution, indicating the limited solubility of uranium in molybdenum. Small nuclei of the second phase were clearly seen within the γ_{Mo} ✓

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solid solutions. The hardness-composition curve showed a maximum at 3.5 at.-%, indicating the $\alpha \rightarrow \gamma$ transformation; a minimum at 11 at.-%, corresponding to the transformation $(\alpha + \gamma) \rightarrow \gamma$; and a broad maximum at 38 at.-%, indicating $\gamma \rightarrow (\gamma + \gamma_{\text{Mo}})$. The hardness ranged from 120 to 425 kg/mm². The curve of the lattice parameter vs. composition for the γ -solid solution is an almost straight line leading from 3.467 kX to 3.140 kX; according to this curve, the $\gamma/(\gamma + \gamma_{\text{Mo}})$ boundary at 1000°C was set near 35.5 at.-% Mo. The X-ray analysis of Mo-poor samples showed that within the range of 0 to 8 at.-%, b fell from 5.852 to 5.784 kX, while a and c did not change and the atomic volume decreased, from 20.64 to appr. 20.3 (kX)³. A separate X-ray series of tests in the range of 0.63 - 5.06 at.-% was performed on samples quenched from 800°C. A mixture of α - and β -phases was identified at up to 2.27 at.-%; at 2.93 - 5.06 at.-%, only α was present. Similarly, X-ray analyses were performed on samples quenched from 750°C, 700°C and 600°C, following prolonged heating periods. At the latter temperature both hardness and micrography analyses indicated the $(\alpha + \gamma)/\gamma$ boundary to be at 17.5

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The structure of the ...

at.-% Mo. There are 15 figures and 5 references: 1 Soviet-bloc and 4 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: P. Pfeil, The Constitution of Uranium-Molybdenum Alloys. J. Inst. Metals, 77, 553-570 (Aug. 1950); C. W. Tucker, Discussion on the Constitution of Uranium-Molybdenum Alloys. J. Inst. Metals, 78, 760 (1951); P.C.Z. Pfeil and J. D. Browne, Superlattice Formation in Uranium-Molybdenum Alloys, AERE M/R 1333 (1954); E. K. Halteman, The Crystal Structure of U_2Mo . Acta Cryst. 10, 166, (1957). ✓

Card 4/4

33900
S/640/61/000/000/021/035
D205/D302

21.2100

AUTHORS: ~~Badayeva, T. A.~~ and Kuznetsova, R. I.

TITLE: Phase diagram of the system uranium-molybdenum-chromium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 325-338

TEXT: The ternary system U-Mo-Cr was investigated in the entire concentration range. The starting alloys were prepared from 99.77% pure U (containing 0.03% C), 99.99% Mo and 99.99% Cr by direct smelting in thorium-lined corundum crucibles, in argon. The microstructural and thermal methods of investigation were applied. Alloys quenched from 1080, 1000, 900, 800, 750, 725, 700, 675, 640 and 600°C were studied. The data of the thermal analysis are summarized in the projection of the liquidus surface of the uranium corner of the system on the composition triangle. The phase diagrams are given for the isothermal sections at 800, 750, 725, 700, ✓

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Phase diagram of ...

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675, 640°C and room temperature. Finally, the results are presented as a projection of the phase diagram on the concentration triangle together with a schematical sequence of phase transformations. The region of the δ -solid solutions in the ternary system is determined and it is shown that at 800°C this region narrows sharply from 33 at.-% γ in the U-Mo system to 1.65% Cr in the U-Cr system. There are 12 figures, 2 tables and 3 references: 1 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: H. A. Saller and F. A. Rough, Compilation of US and UK Uranium and Thorium Constitution Diagrams, Report BMJ-1000. Office of Technical Services. US Dept. Of Commerce, Wash., 1955; W. P. Sykes, Metals Handbook, 1948. ✓

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33901

S/640/61/000/000/022/035
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1P. 12P3

21.2100

AUTHOR: Badayeva, T. A.

TITLE: Phase diagrams of systems with thorium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 339-357

TEXT: An extensive critical review of the work on the systems of Th with other alloying elements. The experimental data available are largely incomplete, but sufficient to establish the existence of the following main types of diagrams of Th with other elements: 1) Diagrams with a continuous series of solid solutions between the low temperature modifications and the other elements. As examples Th-La and Th-Ce may serve. 2) Diagrams with a continuous series of solid solutions between the high-temperature modifications of Th and the elements. These solid solutions decompose eutectoidally at low temperatures; the low-temperature modifications form limited solid solutions. The Th-Zr diagram may serve as an example. 3)

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33902

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18.12.83
21.2.00

AUTHORS: ~~Badayeva, T. A.~~ and Kuznetsova, R. I.

TITLE: Structure of thorium-beryllium alloys

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 358-368

TEXT: The The-Be diagram was investigated using alloys of U 99.7% and Be 99.3% pure, smelted in an arc furnace in pure argon. Structure of the alloys was studied by measurements of hardness, microhardness and X-rays. The hardness was measured using a 5 kg load on a TИ (TP) apparatus; the microhardness using a 200 g load on a ИМТ-3 (PMT-3) apparatus; the X-ray pictures were taken from powders using Fe-K α radiation. In addition, thermal analysis was applied which was performed in a vacuum furnace in chemically pure A. The samples were stage annealed: at 1000°C - 24 hours; 900°C - 24 hours; 800°C - 48 hours; 700°C - 48 hours; 600°C - 72 hours. Thereafter, the samples were slowly cooled down to room tempera-

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Structure of thorium-...

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ture. The data of investigation are summarized in a figure. A chemical compound with a face-centered cubic lattice corresponding to a ThBe_{13} is formed, with a melting point $\sim 1930^\circ\text{C}$. This compound is in eutectic equilibrium with a solid solution having a Th basis (α -Th). The eutectic point lies at about 38.5% Be at a temperature of $\sim 1240^\circ\text{C}$. Th Be_{13} is in a peritectic equilibrium with a Be-base solid solution (α -Be). The peritectic point is at 0.03% Th and 1330°C . The solubility of Be in Th in solid state at 1150°C is less than 1 at.-%; at room temperature it is practically nil. The solubility of Th in Be in the temperature range from 1250°C down to the room temperature is less than 0.01%. Hardness of the alloys in the annealed state increases slowly from 82 to 147 kg/mm^2 in the 0 - 60 at.-% Be range. With further increase in Be concentration the hardness rises sharply to 908 kg/mm^2 for almost pure Th Be_{13} . ✓

There are 8 figures, 3 tables and 3 non-Soviet-bloc references. The references to the English-language publications read as follows: H. A. Saller and F. A. Rough, Compilation of US and UK Ura-

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Structure of thorium-...

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nium and Thorium Constitution Diagrams, Report BMJ-1000. Office of Technical Services, US Dept. of Commerce, Wash. D.C., 1955; W. C. Kochler, J. Singer and A. S. Coffinberry, Acta Cryst., 5, 394, (1952); N. C. Baenziger and R. E. Rundle, Acta Cryst., 2, 258, (1949).

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21.2100
19.12P3

33903
S/640/61/000/000/024/035
D205/D302

AUTHORS: Badayeva, T. A. and Alekseyenko, G. K.

TITLE: Phase diagram of the thorium-zirconium system

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 369-380

TEXT: Although this system has already been investigated, certain discrepancies are found between data published by various investigators and, therefore, additional work on the system is justified. The alloys were prepared from 99.7% pure Th and 99.85% pure Zr, by direct smelting in an arc furnace in chemically pure argon. All alloys were subjected to a homogenizing annealing at 1000°C for 72 hours. The alloys of all concentrations were quenched from 1000, 900, 800, 700, 600, 550 and 525°C. The alloys in the Zr concentration range 30 - 75 at.-% were additionally explored at 920, 930, 940 and 950°C and those in the 3 - 23% range at 1050, 1075, 1100, 1150, 1200, 1250 and 1300°C. Microstructure and X-ray analysis was

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Phase diagram of ...

performed on the samples along with hardness measurements. The resulting phase diagram is presented. At high temperatures the β -modifications of Th and Zr form a continuous series of solid solutions based on the body-centered cubic lattice. At rapid quenching this lattice is preserved only on alloys containing 73.93 and 77.50% Zr. In other regions the body-centered cubic lattice is changed into face-centered. In alloys with 40 - 70% Zr the alloys decompose into two solid solutions. In alloys with 84.0 - 96.27% Zr martensitic transformations take place during hardening. At 945°C and 54% Zr the solid solution based on the body-centered cubic lattice decomposes into 2 solid solutions with differing Zr content which are immiscible in the 945 - 920°C range. At 920°C and 40% Zr a monotectoidal transformation of one of the solid solutions takes place. In the whole 920 - 1380°C temperature range, the solid solution on the face centered lattice basis (α -Th) is divided from the region of solid solution on the body-centered lattice basis by a two-phase region narrowing with rising temperature. At 650°C and 86% Zr the solid solution (body-centered) decomposes eutectoidally. There are 6 figures, 2 tables and 2 non-Soviet-bloc

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Phase diagram of ...

references. The references to the English-language publications read as follows: H. A. Saller and F. A. Rough, Compilation of US and UK Uranium and Thorium Constitution Diagrams. Report BMJ-1000. Office of Technical Services, US Dept. of Commerce, Wash. D.C., 1955; O. N. Carlson, Atomic Energy Commission Publ. (AECD-3206, 72 p), 1950.

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18.1295
21.2100

33904
S/640/61/000/000/025/035
D205/D302

AUTHORS: Badayeva, T. A. and Kuznetsova, R. I.

TITLE: Structure of the alloys of the thorium-cerium system

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 381-386

TEXT: 99.7% Th and 97.4% pure Ce (containing as principal impurities 1.4% Nd and 1.2% Pm) were directly smelted in an arc furnace in chemically pure A. To obtain uniform samples the alloys with high Ce content were resmelted several times. The alloys rich in Ce owing to their high susceptibility to oxidation were stored in oil. The investigation of microstructure and hardness and the measurement of the lattice parameter were performed on specimens stage-annealed at 1000, 800, 600 and 400°C. For the microstructural examination the specimens were polished and etched. The hardness was measured on a $\Gamma\eta$ (TP) apparatus using a 5 kg load. The X-ray photographs were taken using the Fe-K α radiation. Metallographic ✓

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Structure of the alloys ...

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examination of the alloys has shown that Th and Ce form solid solutions in the whole range of concentrations. The change of hardness with the % Ce shows a maximum of 88 kg/mm² at 20 - 30 at.-% Ce. The lattice parameter corresponds in the whole range to a face-centered cubic lattice. A negative deviation from Vegard's rule /-Abstractor's note: Name transliterated. / was observed. This is largest at 50% Ce and is explained by atomic interactions. There are 2 figures and 8 non-Soviet-bloc references. The 4 most recent references to the English-language publications read as follows: R. T. Weiner, W. E. Freeth and G. V. Raynor, J. Inst. Metals, 86, 4, 185, (1957-1958); F. H. Spedding, A. H. Daane and K. W. Herrmann, J. Metals, 7, 2 (1957); O. N. Carlson et al., Paper No. 556, presented to the II International Conference on Peaceful Use of Atomic Energy (Geneva, 1955); H. A. Saller and F. A. Rough, Compilation of US and UK Uranium and Thorium Constitution Diagrams. Report BMJ-1000. Office of Technical Services, US Dept. of Commerce, Wash. D. C., 1955. ✓

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33905

S/640/61/000/000/026/035
D205/D302

18.1283
21.2100

AUTHORS: Badayeva, T. A. and Kuznetsova, R. I.

TITLE: Determining lead and tin solubility in thorium in the solid state

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 387-394

TEXT: The investigated samples were prepared from 99.7% Th, 99.9% Sn and 99.992% Pb by smelting in an arc furnace in an atmosphere of chemically pure argon. The specimens were investigated in both quenched and annealed states by microscopic analysis and by measuring hardness, microhardness and lattice parameter. The hardness was measured on a $\Gamma\Pi$ (TP) apparatus using 5 kg loads, the microhardness on a $\Pi MT-3$ (PMT-3) apparatus using 50 g loads, the X-ray pictures were taken by Debye cameras. The U-Sn alloys were investigated in the 0.06 - 20 at.-% Sn range. The microstructure of these alloys has revealed their eutectic character. Temperature of the

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Determining lead and ...


eutectic is tentatively determined at 1325°C . It was found that the alloys quenched from 1300, 1200, 1100 and 1000°C and also the annealed alloys all having a Sn content of 0.06 or 0.12 at.-% are solid solutions; alloys of 0.78% Sn and more are of a two-phase structure. The hardness changes considerably with the Sn content only up to 0.12 at.-% of Sn, remaining almost constant with further increase of Sn content. This is true for the quenched and also for the annealed samples. The saturated solid solution alloys have a hardness of 111 kg/mm^2 for the sample quenched from 1300°C . The corresponding figure for the annealed specimen is 87 kg/mm^2 . The approximate interpolated limit of Sn solubility in Th in the $1300\text{--}20^{\circ}\text{C}$ temperature range is 0.2 at.-%. The Th-Pb alloys were investigated up to 14.01 at.-% Pb. An eutectic reaction was discovered between the solid solution on Th basis and a phase in equilibrium with it. The eutectic temperature was tentatively determined at 1400°C . Alloys hardened from 1300, 1200, 1100, and 1000°C and also annealed alloys showed a monophasic solid solution up to 0.67 at.-% Pb. Up to this Pb content the changes of hardness were sharp in all specimens irrespective of thermal treatment. ✓

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Determining lead and ...

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The interpolated solubility limit of Pb in Th is established to be around 0.7 at.-%. There are 6 figures, 2 tables and 1 non-Soviet-bloc reference. The reference to the English-language publication reads as follows: O. N. Carlson et al., Paper no. 556, presented to the II International Congress on Peaceful Use of Atomic Energy (Geneva 1955).



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33906
S/640/61/000/000/027/035
D205/D302

21.2100

AUTHORS: Badayeva, T. A. and Alekseyenko, G. K.

TITLE: Structure of alloys of the system thorium-zirconium-uranium

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 395-415

TEXT: The specimens were prepared by smelting directly together in an arc furnace of 99.7% pure Th, iodide Zr 99.85% and U 99.78%. An atmosphere of chemically pure A was maintained. The alloys were subjected to a homogenizing annealing at 1000°C in evacuated quartz ampoules. The alloys were then quenched from 1000, 960, 930, 915, 800, 750, 700, 640 and 550°C and investigated for microstructure, hardness and lattice parameter. The hardness was measured on a T_H (TP) apparatus using a 10 kg load, the X-ray patterns were taken using Fe-K_α radiation. Isothermic sections were constructed for the above hardening temperatures. The phase diagram in the

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Structure of alloys ...

1000 - 500°C temperature range is projected on the concentration triangle and a scheme of the transformations in this range is given. At high temperatures a wide region of solid solutions exists in the system based on the body-centered cubic lattice. Lowering the temperature narrows this region considerably. A peculiarity of the system is the decomposition of the β Th BZr δ U-solid solution into two ternary solid solutions of equal body-centered cubic lattices and different compositions. It was established that U dissolves more in the solid solution rich in Zr and less in the solid solution rich in Th, due to the large atomic radius of Th. The solid solution with the body-centered lattice rich in U or Zr undergoes crystalline transformations on quenching from 1000°C. In the first case a phase with an orthorhombic lattice of α -U is formed, in the second case in addition to the phase with the hexagonal α -Zr lattice another ω -phase having a hexagonal lattice is formed at a high degree of alloying. With the increase in Th and U the ternary solid solutions are completely preserved after quenching. There are 21 figures and 4 references: 2 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications

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Structure of alloys ...

33906

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read as follows: F. A. Rough and A. A. Bauer, Constitution of Uranium and Thorium Alloys, Report BMJ-1300, UC-25 Metallurgy and Ceramic (TJD-4500 13th Ed., rev.) Bat. Mem. Inst., Columbus, Ohio, 1958.

X

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33907

S/640/61/000/000/028/035
D205/D302

21.2100

AUTHORS: Badayeva, T. A. and Rybakova, L. I.

TITLE: Simultaneous solubility of thorium and uranium in liquid bismuth

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 416-422

TEXT: A hot decantation method for separating the solid and liquid phases was adopted. The contacting apparatus is described in considerable detail. All the contacting, separating and cooling operations were performed in argon. Chemical analysis of the decanted liquid phase gave the equilibrium composition at the experimental temperature. Bi of 99.999% purity, Th 99.7% and U 99.83% (containing 0.12% carbon) were employed. The simultaneous solubilities of Th and U in Bi were determined at 300, 550, 600, 700, 750, 800, 850, 900, 950 and 1000°C. The results are tabulated and represented graphically. The simultaneous solubility of

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Simultaneous solubility of ...

Th and U in Bi does not differ much from the additive solubility. At 300°C only traces of Th and ~0.1% U are soluble in the liquid Bi. At 1000°C the limiting value of solubility is 4.1 at.-% Th and 7.5 at.-% U. In the investigated range the liquid solution is in equilibrium with the phases of the binary systems ThBi₂ and UBi₂. There are 4 figures, 4 tables and 3 non-Soviet-bloc references. The references to the English-language publications read as follows: R. Ferro, Acta Cryst., 10, 7, 476-477 (1957); Metals Abstr., 85, 806, (1957). ✓

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33908
S/640/61/000/000/029/035
D205/D302

21.2100

AUTHORS: Badayeva, T. A. and Kuznetsova, R. I.

TITLE: Structure of ThBe_{13} - UBe_{13} alloys

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 423-427

TEXT: Isomorphism of the crystalline structures of ThBe_{13} and UBe_{13} and the closeness of their lattice parameters suggested that a continuous series of solid solutions is formed between these compounds. The interactions were studied by micrographic and X-ray methods and also by hardness measurements. The series of alloys which corresponded to a section of the Th-U-Be diagram at a constant at.-% Be of ~92.8 has shown a fair constancy in hardness and a linear change in the lattice parameter from that of pure ThBe_{13} to that of pure UBe_{13} . These facts which point to the existence of

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Structure of ThBe_{13} ...

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of a continuous series of solid solutions between these compounds were also confirmed by the observation of the microstructure. There are 3 figures, 1 table and 2 non-Soviet-bloc references. The references to the English-language publications read as follows: W.C. Kochler, J. Singler and A. S. Coffinberry, (AECD-3417), Acta Cryst., 5, 394, (1952); N. C. Baenziger and R. E. Rundle (AECD-2506), Acta Cryst., 2, 258, (1949). ✓

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BADAYEVA, T. A.

S/089/61/C10/004/025/027
B102/B205

AUTHOR: G. Z.

TITLE: IV All-Union Conference on Physico-chemical Analysis

PERIODICAL: Atomnaya energiya, v. 10, no. 4, 1961, 406-407

TEXT: The IV Vsesoyuznoye soveshohaniye po fiziko-khimicheskomu analizu (IV All-Union Conference on Physico-chemical Analysis), convened by the Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova AN SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, AS USSR) and the Institut metallurgii im. A. A. Baykova AN SSSR (Institute of Metallurgy imeni A. A. Baykov, AS USSR), was held from December 6 to 10, 1960 on the occasion of the 100th anniversary of the birthday of N. S. Kurnakov. Part of the 142 reports made at the Conference dealt with problems of the atomic industry, including reports on the physico-chemical analysis of thorium, uranium, plutonium, and their alloys, as well as of zirconium and beryllium (O. S. Ivanov); "radiation phenomena and new problems of physico-chemical analysis" (V. I. Spitsyn); structure and constitution diagrams of the ternary systems thorium - zirconium - uranium ✓

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IV All-Union Conference...

S/089/61/010/004/025/027
B102/B205

(G. K. Alekseyenko and T. A. Badayeva), uranium - molybdenum - zirconium (G. N. Bagrov), uranium - zirconium - niobium (L. I. Gomofov), uranium - niobium - molybdenum (G. I. Terekhov); and physico-chemical analysis of metallic system with rare metals (Ye. M. Savitskiy). V. F. Terekhova reported experimental and theoretical data on rare-earth alloys and presented new constitution diagrams of alloys of yttrium, neodymium, and gadolinium with magnesium, of yttrium and neodymium with aluminum, and of gadolinium with iron and nickel; furthermore, she described the properties of the latter. M. A. Tytkina held a report on tests of alloys of rhenium, tantalum, and tungsten, and also on reactions between these alloys and elements of the 4th, 5th, 6th, 7th, and 8th group.

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BADAYEVA, T. A.

Phase Diagrams (Cont.)

1. L. I. Badayeva, I. I. Lutsova. Phase Diagrams of the Uranium-Titanium System.

2. L. I., I. A. Rubtsova, and O. S. Ivanov. The Structure of Uranium-Rich Alloys of the Uranium-Titanium System at 1000°, 850°, and 600°C.

3. L. I., and R. Kh. Fagirova. Polythermal Section of the Uranium-Niobium-Molybdenum Ternary Phase Diagram at 1000 (wt%) and at 800 (wt%) Uranium.

4. L. I., Yu. S., and O. S. Ivanov. Decomposition of the Solid Solution in Uranium-Niobium and Uranium-Zirconium Alloys.

5. L. I., Yu. S. Change in γ -Phase Region in the Phase Diagram of the Uranium-Zirconium-Niobium-Molybdenum System at Temperatures Below 1000°C. 116

6. O. S. IVANOV, O. S. Doctor of Chemical Sciences ed. Stroyeniye i svoystva splavov urana, toriya i tsirkoniya; sbornik statey (Structure and Properties of Uranium, Thorium and Zirconium Alloys; Collection of Articles) Moscow, Gosatomizdat 1963 p. 378.

RAINE VERA

[illegible]

PART II. THORIUM-BASED ALLOYS

Author: A. A. R. I. Kuznetsova. Structure of Th-Zr

...ova, P. ... and R. I. Kuznetsova. Strengthening of ...
... Carbon.

... and G. A. Alekseyenko. Effect of the
Rate on ω -Phase Formation in Thorium-Zirconium-
Alloys

29. Andayeva, T. A., and G. K. Alexseyenko. Mechanical and Corrosion Properties of Thorium-Zirconium and Thorium-Zirconium-Uranium Alloys

30. Badayeva, T. A., and R. I. Kuznetsova: Structure and Corrosion Properties of Alloys of the Thorium-Zirconium-Titanium System

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BALAYEVA, T.A.

svoystva spлавov urana, tsvetnaya i tsvetnaya
 and Properties of Uranium, Thorium, and Niobium
 Collection of Articles! Moscow, Gosatomizdat, 1963.
 2000 copies printed.

Balayeva, T. A., and G. K. Alekseyenko. Structure of
 Alloys of the Thorium-Zirconium-Niobium System

Balayeva, T. A., and G. K. Alekseyenko. Corrosion Prop-
 erties of Thorium-Zirconium-Niobium Alloys

and L. I. Rybakova. Structure of ThSi_2

PART III. ZIRCONIUM-BASE ALLOYS

34. Balayeva, T. A., and L. I. Rybakova. Structure of Bina-
 rium-Zirconium and Zirconium-Lead Alloys in the Solid
 State

35. Terekhov, G. I., and O. S. Ivanov. Phase Diagram of the
 Zirconium Corner of the Zirconium-Chromium-Tin System

300

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BADAYEVA, T. A.; ALEKSEYENKO, G. K.; KUZNETSOVA, R. I.

"Structure and properties of ternary alloys containing thorium."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva,
31 Aug-9 Sep 64.

BADAYEVA, T.I.; MOLOT, L.A.; FRUMINA, N.S.; PETRIKOVA, K.G.

Rapid methods for determining aluminum, iron, and calcium in
slimes. Uch.zap. SGU 75:100-102 '62. (MIRA 17:3)

BADEA, A.

SURNAME (in caps); Given Names

Country: Rumania

Academic Degrees:

Affiliation: Regional Veterinary Laboratory (Laboratorul Veterinar Regional), Iasi.

Source: Bucharest, Probleme Zootehnice si Veterinare, Vol XI, No 10, Oct 1961, pp58-62.

Data: "Observations on Certain Foci of Anaerobe Enterotoxemia in Sheep."

Authors:

SIRMON, E., -Dr.-

MINASCURTA, S., -Dr.-

BADEA, A., -Veterinarian.-

CRISTEA, S., -Veterinarian.-

BADEA, A., ing.

Contribution to the labor productivity increase. Constr. Buc
14 no. 676:3 22D'62

1. Directorul I.A.U.P.S.

BEJENARU, C., dr.; SIMON, Elisabeta, dr.; BADEA, Ana, dr.; LUCA, A., dr.;
ONU, Mariana, dr.; BURDUJA, Ana, dr.; BELDIMAN, N., dr.

Contribution to the serological study of animal leptospirosis
in the region of Iasi. Microbiologia (Bucur) 10 no.2:147-152
Mr-Ap'65.

1. Laboratorul regional veterinar, Iasi (for Bejenaru, Simon,
Badea, Luca, Onu). 2. Laboratorul de zoonoze al Institutului
de igiena si protectia muncii, Iasi (for Burduja, Beldiman).

BADEA, D.

"The marshrut method." p. 18. (Stiinta Si Cultura, Vol.5, No.10, Oct 1953, Bucuresti).

SO: Monthly List of East European Accessions, Vol 3, No.2 Library of Congress Feb 54 Uncl

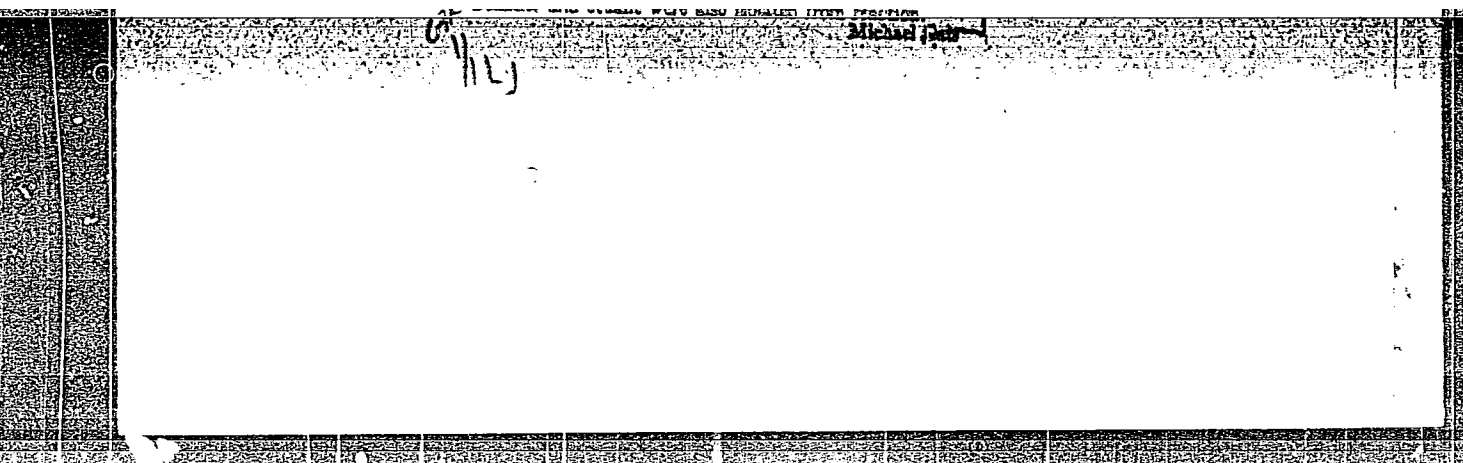
Distr: 4Rid

Catalytic dehydrogenation of cyclooctatetraene in the gas
phase. Costin D. Nenitzescu and Florin Nedea (Polytech
Inst. Bucharest, Romania)

2-A/MS/724

"APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000102930006-0



APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000102930006-0"

BADEA, F.

Distr: 4E2c(j)/4E3d

Dichlorocarbene in the pyrolysis of silver trichloroacetate.
Viorica Ioan, F. Badea, Ecaterina Clororescu, and C. D.
Nenitzescu (AKA). Bucharest, Romania). *Angew. Chem.*
72, 416(1960); cf. preceding abstr.—The following mech-
anism, postulating dichlorocarbene as intermediate, was
suggested to account for the formation of $(\text{Cl}_2\text{CCO})_2\text{O}$ in the
pyrolysis of $\text{Cl}_3\text{CCO}_2\text{Ag}$ (I): $\text{I} \rightarrow :\text{CCl}_2 + \text{CO}_2 + \text{AgCl}$;
 $:\text{CCl}_2 + \text{I} \rightarrow (\text{Cl}_2\text{CCO}_2\text{CCl}_2)^-\text{Ag}^+ \rightarrow \text{Cl}_2\text{CCOCl} + \text{CO} +$
 AgCl ; $\text{Cl}_2\text{CCOCl} + \text{I} \rightarrow (\text{Cl}_2\text{CCO})_2\text{O} + \text{AgCl}$. Gas analy-
sis confirmed the formation of equimolar amts. of CO_2 and
 CO . I heated in cyclohexene at 70° yielded the anhydride
as major product, about 10% dichloronorcaradiene (identified
by gas chromatography), and a considerable amt. of 1-
formylcyclopentene. S. Altergut

6
1-ox(Pw)
2-JAJ(NBYMAY)
2

IANA, S., lector univ. (Bucuresti); BADEA, Fl., asist. univ.
(Bucuresti)

Distribution of the chestnut (*Castanea vesca* Gartn)
in the Subcarpathians between Jiu and Oltet. *Natura*
Geografie 16 no. 2: 46 Mr-Ap '64.

5910-11, 1-1.

13

Dearest, Anita, Elizabeth, C. & P. on Santa Jean-
ette. Beautiful holiday season, for all. We 27th 1961,
(continued)

FILE NO; PP 155-261.

14. "Contributions to the knowledge of the Alpine lakes in the Pacific 'Mastwa', 312 VIA TAIKUI; pp 163-176.

15. The Water Poding Sources of the Lakes in the Uralial Relief of the Karadzhinskiy Guberniye," I. PROJA and V. ~~SHCHERBA~~SHCHERBA; pp. 279-284.

15. "The Effect of Radiation on Plants," Vegetaria
no 205-196.

17. "Anchored onto legislation in the Vespertine of the Sub-Occidentians Between the Sun and the Circle," S. China and P.I. copy; p. 29-20.

13. "Contributions to the Study of the Spread of the Horn-Tongue in Iceland Salmon," by J. A. AND P. L. DAVIES; pp 201-205.

19. "Problems of National Security," LILA ANDEAL pp 207-213.

BADEH, FI.

1. Recherches sur la Géographie de l'I. Persan (Série Climatologie et Hydrologie), Vol. 1, 1961, (continued)
2. Le Dérive des Glaciers, pp 155-161.
3. Contributions to the Knowledge of the Alpine Lakes in the Persian Massif, Silva LACU, pp 163-176.
4. The Water Finding Sources of the Lakes in the Glacial Valley of the Persian Massif, I. SCOLA and V. REYES, pp 179-181.
5. The Lake of Oshkoteh de White, Valer, REYES, pp 183-184.
6. Contributions to the Study of the Spread of the Lake and the Climate, 3. SCOLA and V. REYES, pp 185-200.
7. Contributions to the Study of the Spread of the Lake and the Climate, 4. SCOLA and V. REYES, pp 201-205.
8. Problems of National Geography, LIA BADEH, pp 207-213.

LUCACI, M., ing.; POP, N., ing.; TUFA, Ion; STANICA, Maria, ing.; BADEA, Gheorghe, ing.; BULBOACA, Eugenia, ing.

Improving the quality of products, an essential objective of the economic activity. Probleme econ 18 no.4:162-164 Ap '65.

1. Director, "Bucuresti" Factory of Plastic Masses, Bucharest (for Lucaci). 2. Head of Technical Service, "Bucuresti" Factory of Plastic Masses, Bucharest (for Pop). 3. Director, Enterprise for Cotton Industry, Bucharest (for Tufa). 4. Head of Service of the Technical Quality Control, Enterprise for Cotton Industry, Bucharest (for Stanica). 5. Director, "Tinara Garda" I.I.S., Bucharest (for Badea). 6. Head of Service of the Technical Quality Control, "Tinara Garda" I.I.S., Bucharest (for Bulboaca).

COSMA, V., dr.; FODOR, O., prof.; MUNTEANU, P., dr.; SCHWARTZ, M., dr.;
MEDREA, B., dr.; ERDOSY, St., dr.; BADEA, Gh., dr.; in colaborare cu: FORGACS, V.dr.; CRACIUN, I., dr.; FARKAS, M.dr.

Research on several digestive diseases in an occupational lead-poisoning environment (ulcer disease and epidemic hepatitis). Med. intern. 16 no.2:221-228 F'64.

1. Clinica a III-a medicală I.M.F., Cluj (for Cosma, Fodor, Munteanu, Schwartz, Medrea, Erdosy Badea). 2. Dispensarul Uzinelor metalo-chimice, Maia Mare (for Forgacs, Craciun, Farkas).

FODOR, O.; DUMITRASCU, D.; BADEA, Gh.; BAN. A.; TRAGOR, S.; CALU, C.;
SZANTAY, I.

Adaptive and pathological changes in the jejunum and ileum
after stomach surgery. Stud. cercet. med. intern. 5 no.2:167-
172 '64

VESTEA, St., dr.; BACIU, Zoe, dr.; PASCU, L.; BADEA, Gr.

Pheochromocytoma with attacks of arterial hypotension. Med. intern.
(Bucur) 17 no.6:731-736 Je'65.

1. Lucrare efectuata in Clinica a III-a medicala, Institutul
medico-farmaceutic, Cluj (director: Prof. O. Fodor).

PADEA, I.; ZAMARIADE, C.

Results obtained in fighting weeds with chemicals. p. 273.

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Monthly List of East European Accessions. (EEAI), LC. Vol. 8, no. 9, Sept., 1959.
Uncl.

BADEA, I.

Technical and economic considerations on the introduction of automation in heating installations of the thermoelectric power plants. p. 215.
ENERGETICA. (Asociatia Stiintifica a Inginerilor si Technicienilor din Romania si Ministerului Energiei Electrice si Industrii Electrotehnice)
Bucuresti.
Vol. 4, no. 5, 1956.

SOURCE: East European Accessions List, (EEAL), Library of Congress,
Vol. 5, No. 11, November, 1956.

BADEA, I.

Technical and economic indicators for industrial electric central heating.

P. 43 (Academia Republicii Populare Romine. Institutul de Energetica. Studii Si
Cenetari De Energetica. Vol. 7, no. 1, 1957, Bucuresti, Rumania)

Monthly Index of East European Accessions (E AI) LC. Vol. 7, no. 2,
February 1958

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BADRA, I.; COIT, G. New types of steam boilers in Russia. p. 507

Vol. 4, no. 11, Nov. 1956

ENERGETICA
TECHNOLOGY
RUSSIA

So: East European Accession, Vol. 6, No. 5, May 1957

BADEA, I

TECHNOLOGY

BADEA, I. Consideration on the problem of establishing the power capacity and t
the type of rural thermoelectric plants in Rumania. p. 449
Vol. 6, no. 10, Oct. 1958 (Periodical: ENERGETICA)

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 3,
March 1959, Unclass.

BADEA, I.A., conf.; PARASCHIV, A., inzh.; WLEZEK, C., ing.

Atomic electric plants equipped with reactors with water under pressure. Energetica Rum 9, no.7, 261-275 J1 '61.

COGALNICEANU, Alexandru, ing. (Bucuresti); BADEA, Ioan Arsenie, conf.
ing. (Bucuresti)

The influence of hydroelectric plants on fuel consumption in the
thermoelectric power stations of the power system. Energetica
Rum 10 no.3:89-96 Mr '62.

1. Sef de sectie la Comitetul pentru tehnica noua (for Cogalni-
ceanu). 2. Specialist consultant la Comitetul pentru tehnica
naua (for Badea).

BADEA, Ioan Arsenie, conf. ing. (Bucuresti); WLEZEK, Camil, ing.

"Technical and economical bases of district heating" by Ioan
D. Stancescu. Reviewed by Ioan Arsenie Badea, Camil Wlezek.
Energetica Rum 10 no.3:122-123 Mr '62.

MANESCU, Iujor, conf. univ.; BERNARD, Marcu, ing.; TEODOR, Nicu, economist;
BADEA, I.A., conf. univ.

Sources of heat used in truck gardening. St. si Teh Buc 15 no.2:
14-17, 33 F '63

1. Institute of Research for Horticulture and Viticulture (for Manescu). 2. Head of the Electric Power Department, Ministry of Mines and Electric Power (for Bernard). 3. Polytechnic Institute Bucharest (for Badea).

NISTOR, M., ing.; BADEA, I.A., ing.; MARCU, S., ing.; MIREA, N., ing.
NENITA, E., ing.; SIMIAN, E., ing.

Development of automation and telemechanics in the electric power
industry in Rumania. Automatica electronica 8 no.4:155-165 J1-Ag '64.

L 45781-65

ACCESSION NO: AP5014775

RU/0011/64/008/004/0155/0165 ¹⁵/_B

AUTHOR: Nistor, M. (Engineer); Badea, I.A. (Engineer); Marcu, N. (Engineer);
Mirea, N. (Engineer); Nenita, E. (Engineer); Simian, E. (Engineer)

TITLE: Development of automation and telemechanics in the power industry of
the Rumanian People's Republic

SOURCE: Automatica si electronica, v. 8, no. 4, 1964, 155-165

TOPIC TAGS: automation, automatic control system, automation equipment,
electric industry

Abstract: A description of the automation devices and systems
used in the Rumanian power system. Covered are automation in
thermoelectric power stations, in hydroelectric power stations,
in the power line network and in the electric distribution
substations. Block diagrams and photographs of the principal
items are given. Orig. art. has 8 figures.

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 000

ENCL: 00

OTHER: 000

SUB CODE: IE, EE

JPRS

Card

1/1 me

BADRA, J.I., lector

Selective herbicides. St si Teh Buc 15 no.6:12-13 Je '63.

1. "N. Balcescu" Agronomic Institute, Bucharest.

ROMANIA

RAHSA, I. I., Lecturer, Bucharest [affiliation not given]

"Crop Rotation as a Means of Enhancing Agricultural Production."

Bucharest, Natura. Seria Biologie. Vol. 15, No 1, Jan-Feb 1963, pp 46-52.

Abstract: A review article on various systems of crop rotation and their effectiveness as based on the results obtained in the USSR and Romania. Discusses the effects of monoculture and the characteristics of various types of grass, cereals, leguminous plants and fodder crops.

Includes 1 figure, 1 table and 5 Romanian and 3 Russian references.

11/1

BADEN, LILCO

Index 7 (12)

Recherches, Institut "Géographie" C.T. Paris (Géographie Alpine)
 (continued)

14. "Contribution to the knowledge of the Alpine lakes in the French Massif," Annales pp 163-176.
15. "The water feeding sources of the lakes in the Jura and V. Massif," pp 179-184.
16. "The Forest of the Massif de Jura," Annales pp 185-191.
17. "Anthropogenic modifications in the vegetation of the sub-alpine forests between the Jura and the Alps," Annales pp 192-196.
18. "Contributions to the study of the spread of the Pinus sylvestris in the Jura and V. Massif," pp 197-201.
19. "Problems of Vegetal Geography," Annales pp 207-211.

(12)

BADEA, L.

Historicogeographical study of the settlements of the Vidra region.
p. 195.

AN ALELE SEPIA STINTELOR NATURII. Bucuresti, Rumania. Vol. 7, no. 20, 1958.

Monthly List of East European Accessions (EEAI), LC. Vol. 8, no. 9, ^{Sept.} 1959.
Uncl.

BADEA, L.

Sands of the Calafat region and their worth. p. 191

ANALELE. SERIA STINTELOR NATURII. Bucuresti, Rumania.
Vol. 7, no. 17, 1958

Monthly list of European Accessions (EEAI) LC, Vol. 8. no. 8, Aug. 1959

Uncl.

BADEA, Lucian

The Jiblea depression; geomorphological characteristics. Probleme
geog 7:131-144 '60. (EEAI 10:3)
(Rumania--Geomorphology)
(Carpathian Mountains)

BADEA, Lucian; POPA, Gh.

Terraces of the Bistrita River and deposits of the terrace in the
sector Galu-Bicas. Probleme geog 8:163-181 '61.

BADEA, Lucian

"The depression of Husi" by Ion Cugiuman. Reviewed by Lucian Badea.
Probleme geog 8:598-599 '61.

①
RUMANIA

SUFRIN, Willi, Dr; BADEA, Lucia, Chemist

Analysis Laboratory of the Clinical Hospital "Polizu"
(Laboratorul de analize al Spitalului clinic "Polizu"),
Bucharest. (For all).

Bucharest, Viata Medicala, No 12, 15 Jun 63, pp 841-846

"Study of the Cytovaginal Smear In Exploring the Ovarian
Function."

(2)

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geog 9:85-93 '62. (publ. '63)

BADEA, L.

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ethene and propylene. Theoretical considerations and
calculations. (1955) 1. 1-10.

LFH

FADEM, L.

Conventional representation of measuring, regulating, and signalling instruments
for industrial plants. p. 11.

STANDARDIZAREA, Bucuresti, Vol. 7, no. 4, Apr. 1955.

SO: Monthly List of East European Accessions, (EASAL), LC, Vol. 4, no. 10, Oct. 1955,
Uncl.

BADEA, L.

New and characteristic industrial branches in the district of Gaesti. p. 277.

~~ANALE~~. SERIA STIINTELOR NATURII. Rumania. Vol. 5, no. 11, 1956)

SO: Monrhly List of East European Accessions (EEAL) LC, Vol, 6, no. 7, July 1957. Uncl.

"APPROVED FOR RELEASE: 06/06/2000

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BADEN, L

APPROVED FOR RELEASE: 06/06/2000

CIA-RDP86-00513R000102930006-0"

BADEA, L.

BADEA, L. Denominations and conceptions used in the automatic-control technique.
(To be continued) p. 13.

Vol. 8, no. 10, Oct. 1956

STANDARDIZAREA

TECHNOLOGY

Bucuresti, Rumania

So: East European Accession, Vol. 7, no. 3, March 1957

BADEA, L.

BADEA, L. Denominations and conceptions used in the automatic-control technique.
(Conclusion). p. 5

Vol. 8, no.11, Nov. 1956

STANDARDIZAREA
TECHNOLOGY

Bucuresti, Rumania

So: East European Accession, Vol. 7, no. 3, March 1957

RADEA, L; COLT, G.

Determination of thermal characteristics of heating various buildings in Bucharest for a district central-heating system. p. 336.
(ENERGETICA. Vol. 5, no. 7, July 1957, Rumania)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 12, Dec. 1957
Uncl.

BADEA, L., cercetator (Bucuresti)

In the Olt Defile at Turnu Rosu-Cozia. Natura Geografie
16 no. 2: 75-77 Mr-Apr '64.

BATEA, H.

Contributions to the knowledge of slash disposal.

P. 781 (REVISTA PADURILOR) (Bucuresti, Rumania) Vol. 71, no. 12. Dec. 1957

SO: Monthly Index of East European Accessions (EFAI) LC Vol. 7. No. 5. 1958

RUMANIA

ABAGIU, P., Dr, Lt-Col, and BADEA, M., Dr [affiliation not given]

"The Burnett Syndrome. Considerations on a Clinical Case."

Bucharest, Revista Sanitara Militara, Vol 62, No 1, Jan-Feb 66, pp 99-102.

Abstract: The authors present a case of Burnett syndrome in a 37-year old male patient, and discuss the diagnosis and treatment of the affliction. They suggest that the incidence of this condition is probably more extensive than might be assumed, and stress the importance of proper diagnostic procedures.

Includes 10 references, of which 2 Rumanian, one German and 7 English-language. -- Manuscript submitted 5 May 1965.

Country : ROMANIA
Category : Cultivated Plants. Cereals. Leguminous Plants.
Tropical Cereals. M

Abs Jour : RZhBiol., No 6, 1959, No 24808

Author : Potlog, A. S.; Siclovan, V.; Badea, S.
Inst : Academy of Sciences RPR.
Title : Growing of Wheat Grades in a Mixture. Experimental Results on Growing the Winter Wheat Varieties "Cenad 117" and "Odvos 241" in a Mixture.

Orig Pub : Studii si cercetari stiint. Academ. RPR. Baza Timisoara. Ser. stiinte agric., 1957, 4, No. 3-4, 83-91

Abstract : Data on the study of the behavior of grades growing in a mixture. No increase in the harvest in comparison with pure cultivation of these grades under experimental conditions (western part of Rumania) was noticed. Exi-

Card : 1/2

Country : RUMANIA.
Category : Cultivated Plants. ~~Cereals~~. Leguminous Plants.
Tropical Cereals. 11

Abs Jour : RZhBiol, No 6, 1959, No 24808

Author :
Inst :
Title :

Orig Pub :

Abstract : stence of intra-grade competition was revealed -
the variety Odvos 241 is better adjusted to gi-
ven conditions and displaced the less adjustable
Cenad 117.

Card : 2/2

RUMANIA

VAINER, E., Colonel, Medical Corps; CHEORGHIU, D., Lieutenant-Colonel, Medical Corps; RADULESCU, G., Captain, Medical Corps; and BADIA, T., Captain, Medical Corps.

"Role of Bronchoscopy in the Diagnosis of Bronchopulmonary Cancer"

Bucharest, Revista Sanitara Militara, Vol. 62, No. 3, May-June 1966; pp 567-571

Abstract: Data on 24 patients aged 24 to 68 years, including 21 who had bronchoscopy: 18 men and 3 women, only 6 of the 21 could be treated surgically, the rest were too far gone; all had bronchoscopy for bronchopulmonary malignancy. 3 roentgenograms, 3 tables. Manuscript received 20 September 1965.

BADECKA--JEDRZEJEWSKA, Jadwiga

Tentative applications of the electrographic method in semiquantitative determination of copper in brass. Nauki matemat przyrod Lodz no.10: 177-183 '61.

1. Department of Inorganic Chemistry, University, Lodz.

BADELIN, A., serzhant sverkhstrochnoy sluzhby, radist 1-go klassa

On an aircraft radio set. Starsh.-serzh. no.5:19 My '62.
(MIRA 15:6)

(Airplanes—Radio equipment)

BADENKO, A.M. (Leningrad)

Standard plan for a clothing factory. Shvein.prom. no.1:13-16
Ja-F '61. (MIRA 14:3)
(Factories--Design and construction)
(Clothing industry)

15-57-10-14646
Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 10,
pp 213-214 (USSR)

AUTHORS: Malakhov, V. A., Badenko, I. I.

TITLE: Influence of a Rice Field on Water-Salt Balance of the
Ground and the Ground Waters in Adjacent Fields
(Vliyaniye risovogo polya na vodnyy i solevoy rezhim
pochvy i rezhim gruntovykh vod prilegayusnchikh poley)

PERIODICAL: Tr. Inta vodn. i lesn. kh-va. Kazakhsk. fil. VASKhNIL,
1956, Nr 1, pp 26-49

ABSTRACT: Observations were made for two years in specially
located wells to establish the boundaries of negative
influence of a rice field on salt content of soil and
ground water. Soils and ground waters were sampled when
the rice field was flooded (May), while the rice was
growing (July), and when the water was drained around
the rice paddies during harvest (September--October).

Card 1/2

15-57-10-14646

Influence of Rice Field on Water-Salt Balance (Cont.)

flooding appeared at a distance of 200 m. The author describes the rise and fall of ground waters in relation to irrigation and deposited matter. In certain places the inundated land was intersected by deep canals. The water used for flooding the rice paddies seeps down and blends with ground water. Observational data prove that vertical water migration causes the ground water level in adjoining fields to change, but that horizontal migration is virtually nonexistent. Rising ground waters near the rice field cause the upper layer to become very moist. Data on moisture distribution are given. High moisture content creates conditions suitable for capillary rise and salt deposition. Data on salt movement in the soil are given, and are helpful in determining whether the ground will bear a good crop.

Card 2/2

A. Ya. Smirnova

34170

S/048/62/026/002/004/032
B101/B102

24.6210

AUTHORS: Badenko, I. I., Berlovich, E. Ye., and Fleysher, V. G.

TITLE: Slow electrons in the β^- -decay of P^{32}

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya fizicheskaya,
v. 26, no. 2, 1962, 197-201

TEXT: The ionization of the atomic shell in the β^- -decay of P^{32} was examined. Slow electrons were recorded by a louver-type electron multiplier (EM) with 18 CuBe-alloy dynodes (amplification factor $\sim 10^5$). β -particles were recorded with an anthracene crystal, the scintillation pulses of which were fed to a photoelectric multiplier (PEM) through a light pipe. The energy of ionization electrons was determined by means of a retarding field. The pulses of EM and PEM were fed to a gate circuit with a time resolution of 0.5 μ sec. The measurements were made at $1 \cdot 10^{-5}$ mm Hg. Sources: (1) a monomolecular cetyl phosphate source (activity $\sim 0.003 \mu$ c per cm^2 , layer thickness on collodion film $< 50 \mu\text{g} \cdot \text{cm}^{-2}$);

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S/048/62/026/002/004/032
B101/B102

Slow electrons in the...

(2) a source obtained by boiling down a solution containing PO_4^{3-} and PO_3^- ions, enriched with P^{32} according to V. N. Nefedov et al. (Radiokhimiya, 1, 236 (1959)) (activity $\sim 0.7 \mu\text{c}$, layer thickness $< 10 \mu\text{g}\cdot\text{cm}^{-2}$). Coincidences of beta particles with slow electrons ($< 10 \text{ ev}$) were observed with both sources (Fig. 2). No coincidences took place when the active surface of the source faced the crystal. They did not change if the distance between the source and the first dynode was extended to 25 cm. Hence, there were no negative ions, but only ionization electrons knocked out of the outer shell. The M-electrons of phosphorus participate in the chemical binding with the four oxygen atoms of cetyl phosphate. Four σ bonds and one π bond are formed. $Z_{\text{eff}} < 5.4$ is found when allowing for σ -electron shielding and for the K- and L-shell electrons. The probability of outer shell ionization follows therefrom, calculated on the basis of hydrogen-like protons $> 3.5 \%$ (experimental finding: 9 %). Electrons of more than 10 ev were not observed. Hence, $W_L < 1 \%$, which differs from A. B. Migdal's results (Zh. eksperim. i teor. fiz., 10, 207 (1951)). The data allow the contribution of field-induced emission to be

Card 2/4 3

34170

S/048/62/026/002/004/032
B101/B102

Slow electrons in the...

estimated. Ye. L. Feynberg (Dokl. AN SSSR, 23, 778 (1939)) is mentioned. There are 2 figures and 14 references: 4 Soviet and 10 non-Soviet. The four most recent references to English-language publications read as follows: Boehm, F. W., Wu, C. S., Phys. Rev., 23, 518 (1954); Starfelt, K., Cederlund, J., Phys. Rev., 105, 241 (1957); Miskel, J. A., Perlman, M. L., Phys. Rev., 94, 1683 (1954); Schwartz, H. M., J. chem. Phys., 21, 45 (1953).

ASSOCIATION: Fiziko-tekhnicheskii institut im. A. F. Ioffe Akademii nauk SSSR (Physicotechnical Institute imeni A. F. Ioffe of the Academy of Sciences USSR)

Fig. 2. Number of β^- e coincidences as a function of the stopping potential. (1) Monomolecular source. (2) Source obtained by evaporation. The scale of the ordinate axis differs for (1) and (2). (3) Number N_{eT} of thermal electrons (emitted from tungsten wire) passing through the barrier grids as a function of the grid potential.

Legend: abscissa: V_{stop} ; ordinate: N_{coinc} and N_{eT} in arbitrary units.

Card 3/1 3

S/120/62/000/005/032/036
E075/E436

AUTHORS: Badenko, I.I., Fleysher, V.G.

TITLE: Monomolecular source P^{32}

PERIODICAL: Pribory i tekhnika eksperimenta, no.5, 1962, 179-180

TEXT: A possibility was investigated of preparing a monomolecular source of a known structure with weakly bounded active atoms. A monoester of cetyl alcohol and orthophosphoric acid containing P^{32} was prepared and spread on the surface of water contained in a Langmuir trough. The monomolecular layer formed was compressed by an "oil piston" of castor oil. The monolayer was then transferred onto a collodion film held in a frame. The area occupied by the monolayer on the water surface decreased under the action of the "oil piston" by an amount equal to the area of the monolayer deposited on the collodion film. The authors investigated the activity of sources obtained by a single or multiple deposition of monolayer, by placing the collodion films in a liquid scintillator, where the absolute activity was measured in 4π -geometry. For the original activity of standard orthophosphoric acid of about 1 m curie/mg for P, monomolecular sources were obtained with the activity of 0.003 m curie per 1 cm².
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Monomolecular source p32.

S/120/62/000/005/032/036
E075/E436

The molecular area for one molecule in the monolayer was found to be about 100 \AA^2 . The method permits the attachment of active atoms to solid surfaces by relatively "thin threads". The sources obtained in this way may be utilized for experiments with recoil nuclei and soft electrons. There is 1 figure. ✓

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR
(Physico-technical Institute AS USSR)

SUBMITTED: July 28, 1961

Card 2/2

S/181/60/002/011/006/042
B006/B056

24-7700 (1035, 1043, 1143)

AUTHORS: Konstantinov, B. P. and Badenko, L. A.

TITLE: Investigation of the Behavior of Indium and Antimony
Impurities in Germanium by the Method of Electrodiffusion

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 11, pp. 2696 - 2702

TEXT: The authors investigated the transport of indium and antimony impurities (electrodiffusion) induced by the application of direct current to a germanium sample with a view to studying the general rules of this process; besides, the possibility of using electrodiffusion for introducing and distributing impurities in germanium was studied. In the course of the experiment, impurities were introduced locally into the crystal, and their distribution by direct current was investigated by the method of contact radiography. In¹¹⁴ and Sb¹²⁴ were used as tracer atoms. Radiographic plates of the type MP (MR) and an X-ray film were used. The pictures obtained were photometrically recorded by a microphotometer of the type MF-2 (MF-2). The specimens (single crystals of germanium) had an initial resistivity of 20 ohm·cm. After introduction of

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Investigation of the Behavior of Indium and
Antimony Impurities in Germanium by the
Method of Electrodiffusion

S/181/60/002/011/006/042
B006/B056

the impurities, the specimens were heated at 700°C for 4 - 6 hours, and the specimens, which were then found to be faultless, were examined in a vacuum chamber (Fig.1) at 10^{-2}mm Hg . Fig.2 shows the results of a photometric evaluation of the initial and the final distribution obtained from one of the experiments with n-type Sb. Fig.3 shows the concentration distribution of n-type Sb in a specimen after three experiments with different current directions. From the rate at which the frontal maximum was shifted, the carrier mobility was determined. Numerical results are contained in a table. Finally, special experiments on the temperature dependence of the mobility of impurities are described. The experiments were carried out within the ranges from $300-600^{\circ}\text{C}$ and $800-900^{\circ}\text{C}$. According to temperature, the current density varied from 200 to 350 a/cm^2 at a field strength of 0.4 - 0.8 v/cm. ✓

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Investigation of the Behavior of Indium and Antimony Impurities in Germanium by the Method of Electrodiffusion S/181/60/002/011/006/042 B006/B056

Type of initial material	Impurity	Temperature, °C	Mobility, cm ² /v.sec	Direction of transport
n-type	Sb	500	(1.6±0.2)·10 ⁻⁶	Cathode
p-type	Sb	580	(4±0.5)·10 ⁻⁶	
n-type	Sb	600	(4.2±0.5)·10 ⁻⁶	
n-type	Sb	800	(1.2±0.2)·10 ⁻⁵	Anode
p-type	Sb	800	(1.4±0.2)·10 ⁻⁵	
n-type	Sb	850	(2.4±0.3)·10 ⁻⁵	
p-type	Sb	900	(3.7±0.5)·10 ⁻⁵	Anode
n-type	In	300	(1.5±0.2)·10 ⁻⁷	
n-type	In	450	(5.3±0.5)·10 ⁻⁷	
n-type	In	550	(3.6±0.5)·10 ⁻⁶	Cathode
p-type	In	800	(9.8±1.3)·10 ⁻⁶	
n-type	In	820	(1.3±0.2)·10 ⁻⁵	
p-type	In	900	(5.0±0.6)·10 ⁻⁵	

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Investigation of the Behavior of Indium
and Antimony Impurities in Germanium by the
Method of Electrodiffusion

S/181/60/002/011/006/042
B006/B056

There are 3 figures, 1 table, and 11 references: 7 Soviet, 3 German, and
1 US.

ASSOCIATION: Fiziko-tekhnicheskii institut AN SSSR Leningrad
(Institute of Physics and Technology of the AS USSR,
Leningrad)

SUBMITTED: May 9, 1960

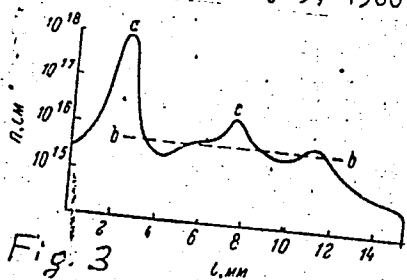


Fig. 3

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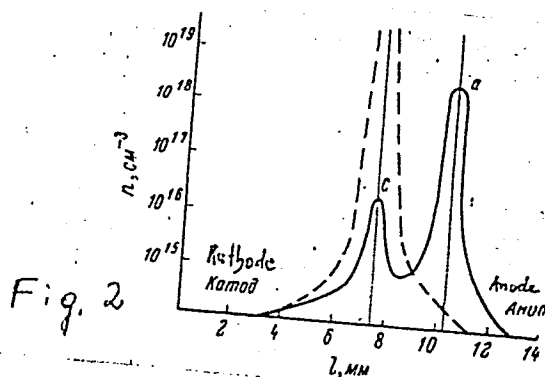


Fig. 2

BADENKO, L.A.

Use of the electrodiffusion method in studying the behavior of
indium and antimony impurities in germanium. Fiz. tver. tela
6 no. 4:986-991 Ap '64. (MIRA 17:6)

1. Fiziko-tekhnicheskii institut imeni A.F.Ioffe AN SSSR,
Leningrad.

ACCESSION NR: AP4028418

S/0181/64/006/004/0986/0991

AUTHOR: Badenko, L. A.

TITLE: Study of the behavior of indium and antimony impurities in germanium by the method of electrodiffusion

SOURCE: Fizika tverdogo tela, v. 6, no. 4, 1964, 986-991

TOPIC TAGS: doped germanium, electrodiffusion, semiconductor, impurity mobility, lattice defect

ABSTRACT: The author has observed the same anomalously high mobility of In and Sb in Ge having the impurities distributed throughout the sample as was found in samples with locally injected impurities (B. I. Konstantinov and L. A. Badenko, FTT, 2, 2696, 1960). This anomalous mobility appears at temperatures above 400-450C. Up to 600C the direction of transport corresponds to the donor properties of Sb and the acceptor properties of In. Above 600C an inversion in direction of transfer occurs; below 600C, the energy of activation of the Sb impurities is 0.6 ev, of the In 1.2 ev. Above 600C the activation energy is very nearly the same for both (about 1.2 ev). Anomalously high mobility was not observed in samples with small numbers of defects, and this leads to the conclusion that the mobility is due to

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ACCESSION NR: AP4028418

Defects (perhaps dislocations) in the crystal lattice of Ge. Orig. art. has: 2 figures, 2 tables, and 2 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR, Leningrad
(Physicotechnical Institute AN SSSR)

SUBMITTED: 12Mar63

SUB CODE: EC, SS

NO REF SOV: 005

ENCL: 00

OTHER: 006

Card 2/2

BADENKO, N.

Improvement of the performance of the drill. Mast.ugl. 2 no.10:21-22 0 '53.
(MLRA 6:10)
(Rock drills)

BADENKOV, P. F.

✓ 4878. Some problems of the development of the
tyre industry in the Sixth Five Year Plan. P. F.
BADENKOV. *Kommunist* 1957, 18 No 9-10
He is the head of the Chief Directorate
of the Ministry of the Machine-Building Industry of the USSR.

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Badenkov, P.F.

BADENKOV, P.F.

Rubber tire industry of the German Federal Republic; notes from a tour of tire factories and machine parts plants producing equipment for tire factories. Kauch. i rez. 16 no.8:36-40 Ag '57. (MIRA 10:11)
(Germany, West--Tires, Rubber)

BADENKOV, P.F.

Tire industry of the German Federal Republic. Kauch. i rez. 17 no.4:
36-39 Ap '58.

(Germany, West--Tires, rubber) (MIRA 11:5)